Larger budget still too small for comfort

Brussels

THE Commission's programme for the support of basic research has a new budget (33 million ECU a year until the end of 1991) and also a new name — SCIENCE — which is a triumph for whichever directorate-general looks after the invention of Community acronyms. But the budget, some 3 per cent of the Framework programme, is too small for comfort — and in 1988 the SCIENCE programme made 114 grants worth a total of 36.8 million of ECU.

Not that those who administer the programme are ungrateful for last year's increase, which has virtually doubled the funds available each year, and which represents a very substantial increase over the 6 million ECU available in 1984, in the first year of what was then called the Stimulation Programme. (No less than 1.5 million ECU was then spent on a project in which half a dozen universities planned to collaborate on optical computing.)

The SCIENCE programme is the nearest thing to a grant-making research foundation that there is within the Commission's organization. Its chief objective is to encourage collaboration between basic research groups, almost always by means of grants that supplement the funds available from national sources. The same budget has been used on three recent occasions to make grants to the European Science Foundation to support networks of European researchers.

Applicants for funds should be wary. SCIENCE does not pay for expensive pieces of equipment, nor does it provide running costs while, like all grant-making organizations with small budgets, it is torn between the wish that the projects that it backs will prosper and the fear that, if they do, they will wish to turn themselves into permanent pensioners. Even so, the programme is ready with examples of projects which have gone well — sometimes, well enough to be partners in larger Commission projects under other programmes, the BRITE programme for example.

One of these is the research programme on new permanent magnets typified by the NdFeB alloys which was begun by the Stimulation Programme in 1985 and which now embraces 120 people from 58 different laboratories (most of them, interestingly, at universities). The collaboration is following up the discovery in 1963, by the Sumitomoto Special Metals Company and General Motors, that sintered materials with the approximate composition $Nd_{17}Fe_{77}B_8$ make permanent magnets of high field strength and coercivity.

The project has the virtue of being interdisciplinary as well as international — there have been problems of growing single crystals, the determination of their crystal structure (which appears to be layered much as are the the high-T_c superconductors), unravelling the relationship between magnetic properties and microcrystalline structure and fabrication techniques. (One remarkable development is exploitation on an industrial scale of the laboratory curiosity, called decrepitation, in which gaseous hydrogen interacts with solid $Nd_{17}Fe_{77}B_8$ newly cast from the melt to reconvert it into a powder.)

The collaboration's biggest prize so far seems to have been the discovery that the partial substitution of Nd by the rare earth element dysprosium (Dy) both increases the coercivity of the alloys and the temperature (below the Curie temperature) at which the exceptional magnetic properties are retained — important because of the temperatures likely to be encountered in the electrical machines incorporating these materials. The project has now won the accolade of a Euroacronym all of its own (CEAM) and support from the programme on advanced materials.

Last year, with more money to spend, CODEST appears to have backed as diverse a range of projects as anybody could wish. The handful of mathematics and computer science projects, for example, includes a three-year collaboration between the universities of Aberdeen and Paris-Sud to develop software that, starting from an incomplete theory and a mass of empirical information, will seek more complete laws and define the exceptions to them.

Last year's biggest projects include a 15-laboratory collaboration to make and characterize the structure of single crystals of high-T_c superconductors, which will cost the SCIENCE programme 1.36 million ECU over two years. Another project (involving laboratories in Belgium and the Netherlands with two in France) aims to build a laser capable of generating light intensities of up 10^{20} W cm^{-2} in 30 femtosecond pulses, with the objective of following the multiphoton ionization of atoms produced (2.06 million ECU over 3 years).

Nineteen laboratories (nearly half of them British) are planning to collaborate on a basic study of the properties of magnetic recording materials with the deliberate intention of providing support for European industry (1.88 million ECU over 3 years), while the Netherlands Cancer Research Institute, the Pasteur Institute in Paris and the British Medical Research Council's Radiobiology Unit at Chilton, Oxfordshire, plan to pool their expertise in the genetics of the mouse to make a start on mapping the mouse genome (1.27 million ECU over 3 years).

Last year's largest collaboration, in

SCIENCE PARLIAMENT

Voice for research in Brussels

Brussels

DGXII, which unlike most of the other directorates-general at Brussels is not much molested by lobbyists, has a scheme to mend its sense of isolation from its true constituents, the research community. Almost subversively, but keeping well within the rules, it plans to establish an assembly of working scientists which will represent the research community in Brussels.

The scheme is entirely within the gift of the Commission, which is free to decide how to spend the resources set aside for meetings of people. About now, the Commission should have taken the plunge. But some member governments are uneasy, suspecting that DGXII is looking for a means of recruiting scientific advice that will be an alternative to that provided by its own placemen on the innumerable Brussels committees.

The uneasiness may be well placed. The European Assembly in Science and Technology will consist of 200 people, a third of whom will be nominated by each of CODEST (see above), the Commission's basic research committee, the European Science Foundation (ESF, see page 723) and national governments (*pro rata* by some rule).

The routine function of the assembly will be that of a panel of referees to whom all kinds of questions may be referred. But DGXII seems genuinely to be looking for new ideas. No doubt there will be opportunities for groups within the assembly to form committees to advocate what seem promising courses of action. There are also plans that the members of the assembly should meet together occasionally. Dreams that the assembly may be the world's first parliament of science are not far beneath the surface.

The practical difficulty may be whether 200 people can adequately represent European science and technology. The nominations not yet made will evidently be crucial. DGXII seems anxious that its assembly should not be mistaken for the European Academy, the feasibility of whose formation is being explored by Sir Arnold Burgen, a past foreign secretary of the Royal Society of London, and with ESF itself, a consortium of national grant-making organizations which has nevertheless sometimes mistaken itself for a European academy. □